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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,812	09/28/2001	George Arrigotti	219.40439X00	2880

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ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-9889

EXAMINER

PATEL, ISHWARBHAI B

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/964,812	Applicant(s) ARRIGOTTI ET AL.	
	Examiner Ishwar (I. B.) Patel	Art Unit 2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-20 and 25-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-20 and 25-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 30 January 2003 is: a) ☐ approved b) ☒ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) : _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The corrected or substitute drawings were received on January 30, 2003. These drawings are not approved.

Only cross hatching for solder was needed in figure 2, 3 and 7, in drawings submitted in September 28, 2002.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-9, 11-20 and 25-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saneinejad et al., US Patent No. 5,734,556, hereafter, Saneinejad, and further in view of Chung, US Patent 5,881,800, Garay, US Patent No. 5,115,375 and Hinshaw et al., US Patent No. 6,195,880.

Regarding claims 1 and 17, Saneinejad discloses an apparatus comprising:

a printed circuit board having a first face and a second face (printed circuit board 14, see figure 1, column 1, line 60-67);

a component to mount on said first face (IC package 12 along with heat sink 24, see figure 1, column 1, line 60-67); and

a mechanism to secure said component to said printed circuit board, said mechanism comprising a clamping apparatus to couple said component and a through hole mount anchor to couple to said printed circuit board, said clamping apparatus to couple to said anchor so as to secure said component to said printed circuit board, said anchor including a loop section to extend from said first face of said printed circuit board, and a first leg to extend through a first through hole of said printed circuit board, and extend from said second face (pin headers 30 and clip 30, pin header 30 with wire loop 44 and wire posts 42, see figure 1 and 2, column 2, line 20-67), but

fails to disclose said first leg including a compressible section to compress when inserted into said first hole and to expand after passing through said first hole, said compressible section to support solder between said compressible section and said second face.

However, the legs with such compressible ends are known in the art for positively connecting a component to a circuit board.

Hinshaw et al., discloses a compressible barb at the end for securing the heat sink to the microprocessor, see figure 7, column 3, line 43-52.

Chung discloses one such fastener which will expand upon passing through through hole of the printed circuit board, see Chung figure 2 and 3, without the use of solder, and

Garay discloses one such retainer with solder connection, see Garay, figure 8.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the assembly of Saneinejad with said first leg including a compressible section to compress when inserted into said first hole and to expand after passing through said first hole, said compressible section to support solder between said compressible section and said second face, from the teachings of Hinshaw, Chung and Garay, apparently in order to have enough strength to avoid separation of the component from the printed circuit board.

Regarding claim 11, the modified assembly of Saneinejad discloses all the features of the claimed invention, including the legs with means for compressing when inserted into the through hole and expanding after passing through it, and will inherently support the solder.

Regarding claims 2 and 18 the modified assembly of Saneinejad further discloses the second leg, Saneinejad figure 2, with the modification as applied to claim 1 above.

Regarding claim 25, the modified assembly of Saneinejad discloses all the features of the claimed invention including the first and second leg extending from the loop as applied to claims 1 and 2 above.

Regarding claims 3, 12, 19 and 27 the modified assembly of Saneinejad further discloses the said compressible section comprise cone-shaped barbs provided on an end of said first leg, see Hinshaw, figure 7, column 3, line 43-52.

Regarding claims 4, 13 and 20 the modified assembly of Saneinejad further discloses compressible section expands to a distance greater than a diameter of said first hole, see Hinshaw, figure 7, column 3, line 43-52.

Regarding claim 5, 6, 14 and 15 the applicant is claiming how the compressible section is formed on the leg, either integrally formed or separate portion of the first leg.

The modified structure of Saneinejad discloses the structure of the compressible section. How the section is formed is a process limitation in a product claim. Such a process limitation defines the claimed invention over the prior art to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is same as, or obvious over the prior art. See Product-by-Process in MPEP 2113 and 2173.05(p) and *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claim 7, though Saneinejad does not explicitly discloses the material used for the mechanism; use of metal is known in the art for better mechanical strength and better workability. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the modified assembly of

Saneinejad with the mechanism made of metal in order to have better mechanical strength.

Regarding claims 8,16, 27 and 28 the modified assembly of Saneinejad further discloses the compressible section extends below said second face with solder between said compressible as applied to claim 11 above.

Regarding claim 9, the modified assembly of Saneinejad further discloses the plated through hole walls, see Saneinejad, column 2, line 42-50.

Regarding claims 29-44, the modified assembly of Saneinejad further discloses said cone-shaped barbs comprise a plurality of barb fingers each extending from a tip of said first leg toward said second face, see Hinshaw, figure 7, column 3, line 43-52.

Regarding claim 45, the modified assembly of Saneinejad discloses all features of the claimed invention including the compressible barb as applied to claims 1-3 above.

Response to Arguments

4. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argument:

(a) "non of the cited references teaches or suggest that a compressible section supports solder between the compressible section and the second face."

The new prior art of Hinshaw discloses the compressible section and it is inherent to support the solder when the leg with the compressible section solder connected to the printed circuit board passing through the hole.

(b) "cone shaped barbs with plurality of barb wire not shown".

Hinshaw discloses cone shaped barb fingers, Hinshaw, figure 7, column 3, line 43-52.

Further, the references are evaluated by what they suggest to one of ordinary skill in the art, rather than by their specific disclosures and though, the references cannot be arbitrarily combined, there is no requirement that a motivation to make the modification be expressly articulated.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (703) 305 2617. The examiner can normally be reached on M-F (8:30 - 5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L Talbott can be reached on (703) 305 9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3431 for regular communications and (703) 305 7724 for After Final communications.

Art Unit: 2827

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

ibp
July 1, 2003

David A. Zarnke
David A. Zarnke
R 2827